UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

Via Electronic Mail and U.S. Postal Service Mail

December 14, 2011

Angela Risdon
Environmental Operation Supervisor
EO - Shared Facilities - North
Pacific Gas and Electric Company
350 Salem Street
Chico, California 95928

Re: Polychlorinated Biphenyls (PCBs), Toxic Substances Control Act – Pacific Gas and Electric Company Risk-Based Disposal Approval Application and Risk-Based Cleanup Levels for Soil

Dear Ms. Risdon:

We appreciate the Pacific Gas and Electric Company (PG&E) submission of the "*Risk-Based Disposal Approval Application for Transformer Oil Release 21690 Highway 299, Del Loma, California*" (Application) dated September 2011 and "*Risk- Based Cleanup Levels for Soil Based on Consumption of Home-Raised Chickens and Eggs*" (RBCLs Document) dated November 16, 2011 and prepared by Arcadis for PG&E. Both documents were submitted by PG&E to the U.S. Environmental Protection Agency Region 9 (USEPA) under the Toxic Substances Control Act (TSCA) regulations for polychlorinated biphenyls (PCBs) in 40 CFR 761.61(c) (PCB risk-based cleanup).

Based on the October 18 and December 7, 2011 conference calls between USEPA and PG&E, both parties agree that additional sampling and analysis of soil, chicken eggs, and chicken fat must be conducted to revise the Application and health risk assessment (HRA [Section 6 of the Application]), and to develop site-specific soil cleanup levels. Enclosed is the guidance that USEPA discussed with PG&E for collection of new soil, chicken eggs, and chicken fat samples.

As explained during our calls, USEPA does not agree with the methodologies and assumptions used in the HRA and the RBCLs Document to estimate the risk of exposure to humans from PCBs via the food chain and calculate risk-based soil cleanup levels for the transformer release site. The Application and HRA include findings and conclusions based on PG&E's evaluation of PCB analysis results for chicken eggs and fat samples collected by PG&E on August 3 through 10, 2011.

According to the HRA, eggs sampled from chickens impacted by PCB-contaminated transformer oil have a higher concentration of PCBs (Aroclors and dioxin-like PCB congeners) than the reference eggs. These impacted chickens are referred to in this letter as "Group I chickens." In addition, average ingestion rates were used in the HRA to estimate risks to human health. Instead of using average ingestion rates, PG&E should estimate risks to human health using site-specific egg consumption rates. PG&E may be able to obtain this information from the property owner. In addition, PG&E must use

reasonable maximum ingestion rates when revising the HRA. The ingestion rates for chicken meat should also be based on reasonable maximum ingestion rates and site-specific consumption rates.

Regarding additional sampling and analysis of chicken eggs and fat, we recommend that eggs from Group I and a second group of chickens (Group II) be collected and analyzed to determine if PCB concentrations in eggs are declining. The "Group II chickens" are those chickens born after PG&E completed excavation of PCB contaminated soils and sampling to confirm residual PCB (as Aroclors) levels in soils. Group I and Group II chicken eggs and fat should be analyzed for PCB Aroclors and PCB congeners.

The RBCLs Document proposes site-specific cleanup levels derived based upon certain assumptions including transfer coefficient rates (Tco) from a California Air Resources Board (CARB) document. USEPA does not concur with the approach and assumptions used in developing the proposed soil RBCLs. The risk analysis used to derive the cleanup levels assumes the source of PCBs in the chickens' diet is solely PCB-contaminated soil. However, other food sources (e.g., seeds, invertebrates) that chickens consume should have been considered. The CARB Tco used in the risk assessment is outdated and CARB has recently proposed a new Tco. And its application to the transformer release site would result in egg concentration estimates several hundred times higher than those presented in the RBCLs Document.

Given the uncertainties associated with the exposure rates used by PG&E and derivation of the Tco, USEPA is requiring that site-specific risk-based cleanup levels for PCBs (as PCB congeners) in soils be developed based on the analysis results of additional soil, chicken eggs, and chicken fat samples.

In reference to the Application, our November 18, 2011 e-mail message (sent at 02:28 PM) from Carmen Santos [USEPA] to Anne P. Conner [PG&E]) requested that PG&E submit the additional information described below in accordance with 40 CFR 761.61(c)(1). Based on our December 7, 2011 call, we understand that PG&E is working on USEPA's request and will respond after gathering all the necessary information.

1. Please submit a written verification of how PG&E determined the PCB concentration on which PG&E based the disposal of PCB-contaminated soils that PG&E removed from the site and placed in drums for offsite disposal. Laboratory analytical results, manifests, and any other waste shipment documents must be submitted to support this verification.

2. Please submit all available records not limited to reclassification, maintenance, servicing, replacement, removal, testing, PCB concentration, registration in USEPA's transformer database, manufacturer, manufacturing date, inspection, disposal, and spill response and cleanup for any and all transformers used by PG&E or its predecessors to supply power to the property at 21690 Highway 299, Del Loma, California.

In concluding, USEPA appreciates PG&E's efforts toward preparing and implementing sampling and analysis plans at the affected property, submitting the Application for review, preparing a health risk assessment that evaluates human exposure to PCB impacted chickens and their eggs, and proposing risk-based cleanup levels for PCBs in soils. We recognize that evaluation of food chain PCB uptake impacts on human health is complex and appreciate the work that PG&E has conducted toward understanding and resolving these issues.

We look forward to PG&E's prompt reply. If you have any questions concerning this letter, please call Carmen D. Santos at 415.972.3360. Thank you.

Sincerely,

Jeff Scott
Director
Waste Management Division

Enclosures (1)

Cc: Ann Conner, PG&E (e-mail only)
Michael Charlton, property owner
Arlene Kabei, USEPA R9
Steve Armann, USEPA R9
John Beach, USEPA R9
Patrick Wilson, USEPA R9
Carmen Santos, USEPA R9
John Beach, USEPA R9

U.S. EPA Region 9 (USEPA)
Guidance for New Sampling and Analysis of Soil, Chicken Eggs, and Chicken Fat
Site: 21690 Highway 299, Del Loma, CA

December 14, 2011

Introduction

Below, USEPA is providing guidance on new additional sampling and analysis of soils, chicken eggs, and chicken fat which PG&E and USEPA discussed on December 7, 2011.

This guidance addresses the following general steps and after completed PG&E must revise the Application and calculate site-specific risk-based soil cleanup levels for PCBs.

1. Conduct additional soil sampling and analysis. Please refer to Section A.
2. Conduct additional chicken egg and fat sampling and analysis. Please refer to Section B.
3. Submit a revised HRA to USEPA for review. Please refer to Section C.

A. Collection of Additional Soil Samples for Analysis of PCB Congeners

The samples should be analyzed for the entire suite of PCB congeners using USEPA Method 1668C. The potential for cancer risks and non-cancer effects will be evaluated using the PCB congener analytical results after validated following the procedures specified in USEPA's July 20, 2011 letter approving sampling and analysis of chicken eggs and fat.

1. **Modifications to PG&E's June 24, 2011 SAP.**[1] Within 30 days after the date of the cover letter, PG&E must submit for approval modifications to the SAP that are responsive to the general comments provided below.

    a. **SAP data quality objectives (DQOs).** The DQOs in the SAP must be revised. The purpose of the soil and chicken eggs and fat sampling and analysis is to support an evaluation of the potential for residual PCB concentrations to adversely affect human health; and to demonstrate human health is not being unreasonably impacted via food chain uptake of PCBs. In addition to other data, validated soil sample analysis data will be used by PG&E in revising the HRA. Please refer to Item B.

    b. **Risk-based PCB cleanup.** USEPA and PG&E will confer to agree on an approach to derive site-specific risk-based PCB soil cleanup levels. PCB analysis results for soil, chicken eggs, and chicken fat samples to be collected will be used in deriving the cleanup levels.

[1] USEPA Region 9's July 20, 2011 letter approved with conditions PG&E's sampling and analysis procedures for chicken fat and eggs described in PG&E's June 24, 2011 *"Sampling and Analysis Plan for Transformer Oil Release 21690 Highway 299, Del Loma California."* Sampling and analysis of soil and other media different from chicken eggs and fat were not approved in USEPA's conditional approval letter. USEPA's letter also required PG&E to submit a risk-based disposal approval application (Application) for PCBs at the site where the transformer release occurred on May 8, 2011. USEPA received and reviewed PG&E's September 2011 Application.

c. **Soil sampling for PCB congeners and Aroclors.** Excavated soil stored in drums will not be sampled. Those soils are not representative of in-situ site conditions.

d. **Recommended soil sampling approach discussed with PG&E on December 7, 2011.** USEPA is recommending a soil sampling approach that uses multi-increment sampling to measure PCB congeners in onsite soils. The PCB congener analytical results should be used in estimating risks to human health.

1. Use multi-increment sampling methodology to subdivide the area of interest into distinct decision units (or subareas) and to collect the samples. USEPA will provide multi-increment sampling procedures to PG&E via e-mail upon request.

2. Multi-increment samples should be collected separately from each decision unit. Each sample should consist of soil and non-soil materials from each decision unit. The combined soil/non-soil samples consist of soil, turf, wood chips, and other materials present at the surface.

3. We recommend that non-soil materials include all items the chickens could and might eat. We do not recommend stratifying or dividing the materials present in the sample into soil and non-soil materials.

4. We recommend that PG&E consider separate decision units encompassing: (a) the area within the current excavation, (b) the area 0 to 10 feet (ft.) immediately adjacent and outside the current excavation area, (c) the area 10 to 20 ft. immediately beyond the current excavation, and (d) the area 20 to 40 ft. immediately beyond the current excavation. Approximately 30 to 50 increment samples must be collected from each separate decision unit. All increments associated with each separate decision unit must be mixed and properly homogenized into one sample at the analytical laboratory before extraction and analysis.

5. Collect increment soil surface samples from 0 to 1 inch below ground surface with an area approximately two (2) inches square. The soil surface samples must comprise of soils and any non-soil materials (defined in Item C.2.c.2. above) present in the sampling locations. Non-soil materials must not be separated from the soil component of the sample. Each sample increment should be of equal volume.

B. Conduct Additional Chicken Egg and Fat Sampling and Analysis

Additional chicken eggs and fat will be sampled and analyzed for PCB congeners using USEPA Method 1668C to determine if the PCB concentration in chicken eggs and fat are declining and to derive a site-specific risk-based PCB cleanup level for PCBs.

PG&E must follow the sampling, analytical methods, and laboratory data validation procedures in PG&E's June 24, 2011 *"Sampling and Analysis Plan for Transformer Oil Release 21690 Highway 299, Del Loma California"* (SAP) as modified by the conditions in USEPA Region 9's July 20, 2011 letter approving the SAP. Chicken eggs to be collected for analysis should be separated into two groups: (a) Group I consisting of eggs from chickens that were potentially impacted by the transformer release; and (b) Group II consisting of eggs from chickens born after PG&E completed excavation of PCB-contaminated soils and post excavation soil sampling. Post excavation soil sample analysis results show residual PCB Aroclor concentrations below the reported detection limit. Egg samples from Group I chickens will be used to measure possible declines in PCB congener concentrations in eggs from chickens that were potentially exposed to the released transformer oil. Egg samples from Group II chickens will be used to measure PCB congener concentration in eggs that might occur from the date when the eggs were sampled and forward.

C. Submit the Revised HRA including Risk-Based Soil Cleanup Levels for USEPA Approval

Section 6 (Expedited Human Health Risk Assessment) of the Application presents PG&E's preliminary assessment of human exposure (HRA) to PCBs by consumption of chickens and eggs exposed to PCBs.[2] The Application and related HRA should be revised consistent with the risk evaluations to be conducted using the new soil, chicken eggs, and chicken fat samples.

General comments on HRA

1. The ingestion rates and exposure duration assumptions made in the HRA based on PCB concentrations measured in chicken eggs and fat are not adequate for USEPA to determine if additional cleanup of PCBs is necessary at the site. USEPA evaluates risks associated with reasonable maximum exposure using an acceptable cancer risk range of 10^{-6} to 10^{-4} with 10^{-6} as a point of departure for risk management. EPA's Exposure Factors Handbook presents a 95th percentile ingestion rate for homegrown eggs in the range of 100 to 150 g/day and for chicken meat 100 to 230 g/day.

2. The hypothetical exposure duration considered in the HRA was based on the unsubstantiated assumption that residual soil PCB concentrations would not contribute to exposure in the future. PG&E needs to demonstrate that residual soil PCB concentrations do not represent an ongoing source for food chain uptake of PCBs that contributes to unreasonable risks of injury to health or the environment.

[2]A pole-mounted PCB-contaminated transformer released oil containing 283 milligram/kilogram (mg/kg) PCBs, contaminating soils and other materials near the release area. Chickens were grazing in the area where the transformer release occurred. The eggs produced by those chickens are consumed as food as well as the chickens.